

Introduction to Plasma Physics

(Physics 472C Fall 2010)

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Topics

- Introduction to plasmas
- Motion of charged particles in electromagnetic fields
- Fluid description of plasmas
- Waves in plasmas
- Diffusion and resistivity

Textbooks:

There is no textbook required for this class. However, I recommend you add Chen's book to your library. I will present material at the same level as Chen's book. However, there are many books available for this topic at an introductory level. I strongly urge everyone to spend some time with several books to gain some perspective on other approaches to the subject.

Chen, F., Introduction to Plasma Physics and Controlled Fusion,
Volume 1: Plasma Physics, 2nd ed.
Springer, 2006

There are several web sites that have complete sets of notes on plasma physics. I recommend:

Fitzpatrick, The Physics of Plasmas
<http://farside.ph.utexas.edu/teaching/plasma/lectures/lectures.html>

Hutchinson, Lectures in Plasma Physics
<http://ocw.mit.edu/OcwWeb/Nuclear-Engineering>

Homework:

I intend to assign a few problems each week taken from that week's material. The homework will be due one week after assigned. Unless there is a unique circumstance, no late homework will be accepted.

Exams:

There will be one exam at the end of the scheduled lectures. I will discuss the format in more detail as the course proceeds.

Grading:

Homework: 50%
Final exam: 50%